REMARKS

Applicants' attorney thanks the Examiner for her comments. Applicants amend Claims 1, 24 and 25 to include the limitation of the bond structure having no burn-through visual defects greater than about 1 millimeter, about 5 to about 50% by weight tackifier and the tackifier having a molecular weight of about 2000 Daltons or less. These amendments are supported on page 10, lines 9-11, and in Claims 7 and 23 which are accordingly canceled.

The Examiner lists Claims 38-40 as being rejected in the Office Action Summary but fails to provide a basis for rejection in the Office Action. Claims 38-40 were added by Applicants in the Amendment filed 12 October 2006. Applicants respectfully request an indication of allowability for at least these claims. If the Examiner has basis for rejecting Claims 38-40, then grounds for rejection should be clearly set forth in a non-final Office Action.

Generally, polymer materials have a high heat capacity (e.g., requiring several units of enthalpy to raise the temperature one degree) and poor thermal conductivity (e.g. they do not readily change temperature like a metal). Polymers also have relatively high latent heats or heat of fusion owing to the tangling of the long molecules with each other. Many polymers have a melting range rather than a discrete melting point.

Polymer films used in bonded structures or laminates are often about 20 μm which is about the thickness of a thin human hair. These thin polymer films can readily be damaged by heat causing holes, ripples, waves or other undesirable imperfections. Applying molten adhesive (polymer) in spray or swirl patterns can easily damage the film since the thickness is only 20 μm and a molten polymer (adhesive) is now contacting a polymer film. Heat transfers to the film from the resin softening the film and ultimately creating a hole while the adhesive solidifies. The physical properties (heat capacity, thermal conductivity, heat of fusion) of the polymer adhesive and the polymer film are not that disparate. Put another way, cooling/solidification of the adhesive can be at the expense of the integrity of the film (direct contact resulting in conduction cooling of the adhesive and melting of the film). The adhesive is applied with sufficient thickness to suitably bond the porous nonwoven web to the polymer film. The drop or line of adhesive may be as

thick as or thicker than the film to which it is applied. This further increases a chance for burn-through due to the thermal mass of the adhesive on the film. Additionally, the desire for a longer open time for the adhesive means that it must have a higher temperature or retain its temperature longer before solidifying which only increases the thin polymer film temperature and likelihood for burn-through. For all the above reasons, Applicants' bonded structure with high bond strength and less burn-through is an unexpected result.

a) Claim Rejection Based On Suzuki

The rejection of Claims 1, 4-25 and 32-37 under 35 U.S.C. § 102(b) as anticipated by, or under 35 U.S.C. § 103(a) as obvious over U.S. Patent 5,763,333 ("Suzuki") is respectfully traversed. In the Office Action, the Examiner states:

> Suzuki **does not** specifically disclose a peel strength and no burn-through visual defects. However, it appears that the bonded structure of Suzuki meets all the structural limitations as set forth in the claims . . . it is the examiner's position that the peel strength and no burn-through visual defects would be inherently present . . . (Office Action, page 3).

Suzuki does not teach or suggest Applicants' amended independent claims. Specifically, this reference lacks a tackifier having a molecular weight of about 2000 Daltons or less and the bonded structure having no burn-through visual defects greater than about 1 millimeter.

Certainly, one skilled in the art would appreciate that it is possible to have the structural elements of Suzuki and still have burn-through. Burn-through is the undesirable result of hot adhesive contacting a polymer material such as a film and softening the polymer material to cause a distortion and/or a hole. Factors affecting burn-through are manifold and include adhesive application temperature, ambient conditions (i.e. limiting cooling), film thickness and the like. There nothing inherent in the structure of Suzuki that creates a bonded structure without burn-through

The Examiner asserts that that the bond strength of Suzuki and the Applicants' invention are equal. This is not true. While Suzuki makes the aspirational statement that adhesive strength is about 100 g/25mm or higher, it does not provide a working example greater than 220 g/25mm. The typical methods used by one skilled in the

art to increase bond strength are to increase the application rate of adhesive and/or increase the adhesive temperature. Neither of these increases would result in Applicants' invention with no burn-through visual defects greater than about 1 millimeter since both increases only raise the likelihood of burn-through due to additional thermal mass or temperature. One skilled in the art would not have an expectation of success when lowering adhesive temperature to both increase bond strength and minimize burn-through, as done in Applicants' invention.

Absent the additional step of heat embossing the **peel strengths** of Suzuki are **significantly lower** than Applicants' peel strength (given comparable adhesive application rates, application temperatures, and similar film thicknesses). Example 3 in Table 3 has an adhesive strength of 141 g/25mm for an adhesive amount of 2.0 g/m^2 and Example 9 in Table 4 has an adhesive strength of 160 g/25mm for an adhesive amount of 2.0 g/m^2. These peel strengths are at least 20% lower than Applicants' examples. Looking at the graph of FIG. 6, for an add-on of 2.0 gsm (adhesive amount of 2.0 g/m^2), the peel strength is 200 g/25mm. It is only by the additional step of heat embossing that Suzuki is able to obtain peel strengths of Applicants' claimed invention (*see* Suzuki Example 6 in Table 3 and Example 12 in Table 4). Applicants' invention **does not require** heat embossing to produce these higher peel strength results for the same adhesive application rates.

The Examiner has failed to provide any of the prima facie requirements for a case of anticipation or obviousness. Accordingly, this claim rejection should be withdrawn.

b) Claim Rejection Based On McCormack In View Of Karandinos

The rejection of Claims 1, 4-6, 9-25 and 32-37 under 35 U.S.C. § 103(a) as obvious over U.S. Patent 5,843,057 ("McCormack") in view of U.S. Patent 6,627,723 ("Karandinos") is respectfully traversed. The Examiner states:

> [I]t would have been obvious . . . to use an adhesive composition as described by Karandinos for bonding the film and nonwoven web of McCormack motivated by the desire to achieve an adhesive bond of sufficient strength between the film and nonwoven web . . . McCormack as modified by Karandinos does not specifically disclose a peel strength and no burn-through visual defects. However, it appears that the bonded structure of McCormack as

> modified by Karandinos meets all the structural limitations as set forth in the claims . . . it is the examiner's position that the peel strength and no burn-through visual defects would be inherently present . . . (Office Action, pages 4-5).

The combination of McCormack and Karandinos does not teach or suggest Applicants' amended independent claims. Specifically, these references lack disclosure of a tackifier having a molecular weight of about 2000 Daltons or less, and of a bonded structure having no burn-through visual defects greater than about 1 millimeter.

The Examiner states that the adhesive peel strength is within the claimed range (*see* Office Action, page 4), however McCormack's peel strength methodology uses a different size sample than Applicants' test method (see McCormack, column 15, lines 1-29, and Specification, page 26, line 22 to page 27, line 21). All that can be said is that the peel strength tests are different.

Furthermore Karandinos actually teaches away from Applicants' invention:

> In one aspect the invention provides a polymer which is suitable for adhesive use and has a sufficiently high storage modulus upon cooling, **without** relying unduly on the presence of lower molecular weight components such as a **tackifier** (which can **create problems** of excessive migration of its constituents and requires blending) or low molecular impurities formed in the course of polymerization and/or which has a low melting point with a narrow melting range and/or which has a monomer distribution pattern which provides an improved balance of low melting point and cohesive strength. Therefore in one aspect the invention provides an adhesive composition or formulation which contains **no or low amounts of tackifier**, yet provides a satisfactory balance of properties for an adhesive composition.

Applicants' invention is a bonded structure using a tackified amorphous poly-alpha-olefin adhesive and **requires about 5 to about 50% by weight tackifier** while not having excessive migration problems. Clearly, Karandinos desires **no** or low amounts of tackifier in its adhesive. Therefore, one skilled in the art would not have been motivated to combine Karandinos and McCormack to arrive at Applicants' invention.

The Examiner has failed to cite prior art which discloses all the limitations of Applicants' independent claims, and has failed to provide a motivation to combine the references. Accordingly, this rejection should be withdrawn.

c) Claim Rejection Based On McCormack In View Of Karandinos And Suzuki

The rejection of Claims 7 and 8 under 35 U.S.C. § 103 (a) as obvious over McCormack in view of Karandinos and Suzuki is respectfully traversed. These claims depend from Claim 1 and are patentable for at least the same reasons explained above.

The combination of McCormack, Karandinos, and Suzuki does not teach or suggest Applicants' amended independent claims. Specifically, these references lack disclosure of a tackifier having a molecular weight of about 2000 Daltons or less, and of a bonded structure having no burn-through visual defects greater than about 1 millimeter.

The Examiner asserts that the molecular weight of about 2000 Daltons or less is inherent since the same materials are used for the tackifier. This is not true. The tackifiers disclosed in Suzuki are resins made from C5-based petroleum resin and C9-based petroleum resin and other materials. Using the same or similar monomers in a resin does not determine the molecular weight of the tackifier. Indeed, there are many C5-based petroleum resins having higher molecular weights than about 2000 Daltons while being a solid a room temperature, e.g., about 10,0000 Daltons. One skilled in the art would not have been motivated to modify the combination of these three references to arrive at Applicants' invention. Accordingly, this rejection should be withdrawn.

d) Claim Rejection Based On Morman In View Of Karandinos

The rejection of Claims 1, 4-6, 9-25 and 32-37 under 35 U.S.C. § 103(a) as obvious over U.S. Patent 6,632,212 ("Morman") in view of Karandinos is respectfully traversed. The Examiner states:

> [I]t would have been obvious . . . to use an adhesive composition as described by Karandinos for bonding the film and nonwoven web of Morman motivated by the desire to achieve an adhesive bond of sufficient strength between the film and nonwoven web . . . Morman as modified by Karandinos does not specifically disclose a

> peel strength and no burn-through visual defects. However, it appears that the bonded structure of Morman as modified by Karandinos meets all the structural limitations as set forth in the claims . . . it is the examiner's position that the peel strength and no burn-through visual defects would be inherently present . . . (Office Action, pages 6-7).

As explained above, Karandinos teaches away from Applicants' invention since it desires little of no tackifier in the adhesive. Thus, the combination of these references is not proper. Additionally, these references do not suggest or teach all the limitations of Applicants' invention. Specifically, these references lack disclosure of a tackifier having a molecular weight of about 2000 Daltons or less, and of a bonded structure having no burn-through visual defects greater than about 1 millimeter. Accordingly, this rejection should be withdrawn.

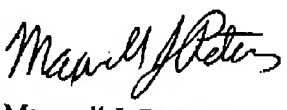
e) Claim Rejection Based On Morman In View Of Karandinos And Suzuki

The rejection of Claims 7 and 8 under 35 U.S.C. § 103(a) as obvious over Morman in view of Karandinos and Suzuki is respectfully traversed. These claims depend from Claim 1 and are patentable for at least the same reasons, explained above. Specifically, these references lack a tackifier having a molecular weight of about 2000 Daltons or less and the bonded structure having no burn-through visual defects greater than about 1 millimeter. Accordingly, this rejection should be withdrawn.

f) Conclusion

Applicants believe that the claims, as presented, are in condition for allowance. If the Examiner detects any unresolved issues, then Applicants' attorney requests a telephone call from the Examiner, and a telephone interview.

Respectfully submitted,



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